

What is claimed is:

1. A method of fabricating a semiconductor device comprising:

providing a substrate having at least one semiconductor layer;

forming a conductive layer over the substrate;

vapor priming a first silicon-containing material over the gate oxide;

vapor priming a second silicon-containing material over the first silicon-containing material;

forming a silicon-containing dielectric layer having a thickness of about 35Å by processing the first silicon-containing material and the second silicon-containing material with a reactive agent selected to react with silicon atoms of the first silicon-containing material and the second silicon-containing material; and

forming a gate electrode over the silicon-containing dielectric layer.

2. The method of claim 1 further comprising:

doping the gate electrode with phosphor.

3. The method of claim 1 further comprising:

doping the gate electrode with boron.

4. The method of claim 1 wherein processing the silicon-containing material in a reactive ambient comprises rapid thermally nitridizing the silicon-containing material in an NH_3 ambient at a processing temperature of 850°C .